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ABSTRACT

Each year, the National Center for Education Statistics (NCES), asks thousands of schools and students to participate in the National Assessment of Educational Progress (NAEP). Their participation allows NCES to provide accurate information nationwide on how U.S. students perform in a variety of academic subjects. The NAEP uses a multistage sampling method to select the schools and students who will participate in a given NAEP assessment. For these assessments, NCES began by dividing the country into about 1,000 geographical sampling units and then arranging schools in categories similar to those used in selection of the sampling units. NCES deliberately oversamples private schools and schools with high majority populations. NAEP national and state assessments are done separately. Once a school has been selected for either a state or national assessment, students within the school are classified by grade and then selected at random. NAEP cannot accept either schools or students as voluntary participants in NAEP. The sampling techniques that NCES uses in NAEP allow NCES to produce detailed results on student performance while using only a small sample and a minimum of student time for administration of the assessment. (SLD)

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FOCUS ON NAEP

How Does NAEP Select Schools and Students?

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THE NATION'S REPORT CARD

Focus on NAEP

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How Does NAEP Select Schools and Students?

The National Assessment of Educational Progress (NAEP), the nation's report card, is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other fields. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

Each year, the National Center for Education Statistics (NCES), an agency within the U.S. Department of Education, asks thousands of schools and students to participate in NAEP. Their participation in NAEP allows NCES to provide accurate information for the nation as a whole on how our students are performing in a variety of academic subjects.

In addition, NCES uses NAEP data to compare the performance of students in individual states against the national average, and against students in other states. No other assessment can do this. NCES also uses NAEP data to make comparisons of student performance over time, both nationally and at the state level. These comparisons can be made for all student subgroups—males and females, for example, and for blacks, whites, Hispanics, Asians, and American Indians, as long as the subgroups are well represented in the sample.

Although NCES releases several major NAEP reports every year, most people are not familiar with NAEP. The national press usually refers to NAEP reports as "a national study" or "a federal report," coming from "the federal government" or "the U.S. Department of Education," without identifying NAEP as the source. Because people do not know what NAEP is or what it does, they can be skeptical about why they should participate in NAEP. In fact, NAEP is a unique source of information on education in America, information that policymakers and the general public need if they are to make informed decisions about education in America.

How did I or my school get selected for a NAEP assessment?

NCES uses a multistage sampling method to select the schools and students who will participate in a given NAEP assessment (see figure 1). This method allows NCES to give an accurate picture of student performance, while keeping the burden on students and schools to a minimum. For example, a NAEP national assessment in reading will require the participation of about 8,000 fourth-grade students (out of a population of approximately 3.5 million). Yet this assessment will provide data that are used to estimate the reading performance of all 3.5 million students, and also for subgroups—Hispanic fourth-graders, for example, who constitute only 11 percent of the fourth-grade population.

National assessments

For its national assessments, NCES begins by dividing the country into about 1,000 geographical sampling units, varying in population from several million to

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45,000 (figure 1). The larger a sampling unit is, the greater its chance of being selected. In fact, the 22 largest sampling units—the nation's largest metropolitan areas—are always selected. The remainder are arranged in 72 categories, defined by such factors as geographical location, minority population, education level, and income level. By selecting one sampling unit from each category, NCES will obtain a representative student sample for the nation.

Within a sampling unit, NCES arranges schools in categories similar to the categories used in the selection of sampling units themselves. NCES deliberately oversamples private schools and schools with high minority populations. Oversampling allows NCES to obtain accurate information on the performance of minority and private-school students.[1]

State assessments

NAEP national and state assessments are done separately. States participate in NAEP state assessments on a voluntary basis. An increasing number of states, after deciding to participate in a NAEP state assessment, are requiring schools to participate in the assessment.

In a NAEP state assessment the state is not divided into geographical sampling units. The entire state is treated as a sampling unit, and the schools are arranged in categories in the same manner as in a national assessment.

At the state level, NCES does not oversample schools with a large number of minority students, although a state may augment its sample to obtain greater representation of subpopulations if it wishes. In the past, NCES collected data at the state level for private-school students, but in most states the sample for these students was too small to be useful.

After consulting with organizations of private schools, NCES will test a new approach to collecting private-school data nationally in 2000.[2]

Selection of students

Once a school has been selected for either a state or national assessment, students within the school are classified by grade (4th, 8th, or 12th) and then selected at random.[3] The number of students assessed in a school for a single assessment will usually range from about 30 to 150. The number of students assessed in a school is directly dependent on the size of the school and the type of assessment. The larger the school, the greater the number of students assessed.

Students are selected from the entire eligible student population. For example, if there are three fourth-grade classrooms in a school, students are likely to be selected from all three classrooms. This avoids the bias that might result from taking students from only one of several classrooms. Bias could arise from any number of factors—the use of ability tracking by a school, for example, or the efforts of an exceptional teacher.

Schools are frequently selected for more than one assessment. For example, in 2000, NAEP will be conducting assessments in mathematics, science, and reading. Because each assessment has different materials, instructions, and time periods, each assessment is administered in a separate session, even if several assessments are being administered in the same school on the same day.

Why should I participate in NAEP?

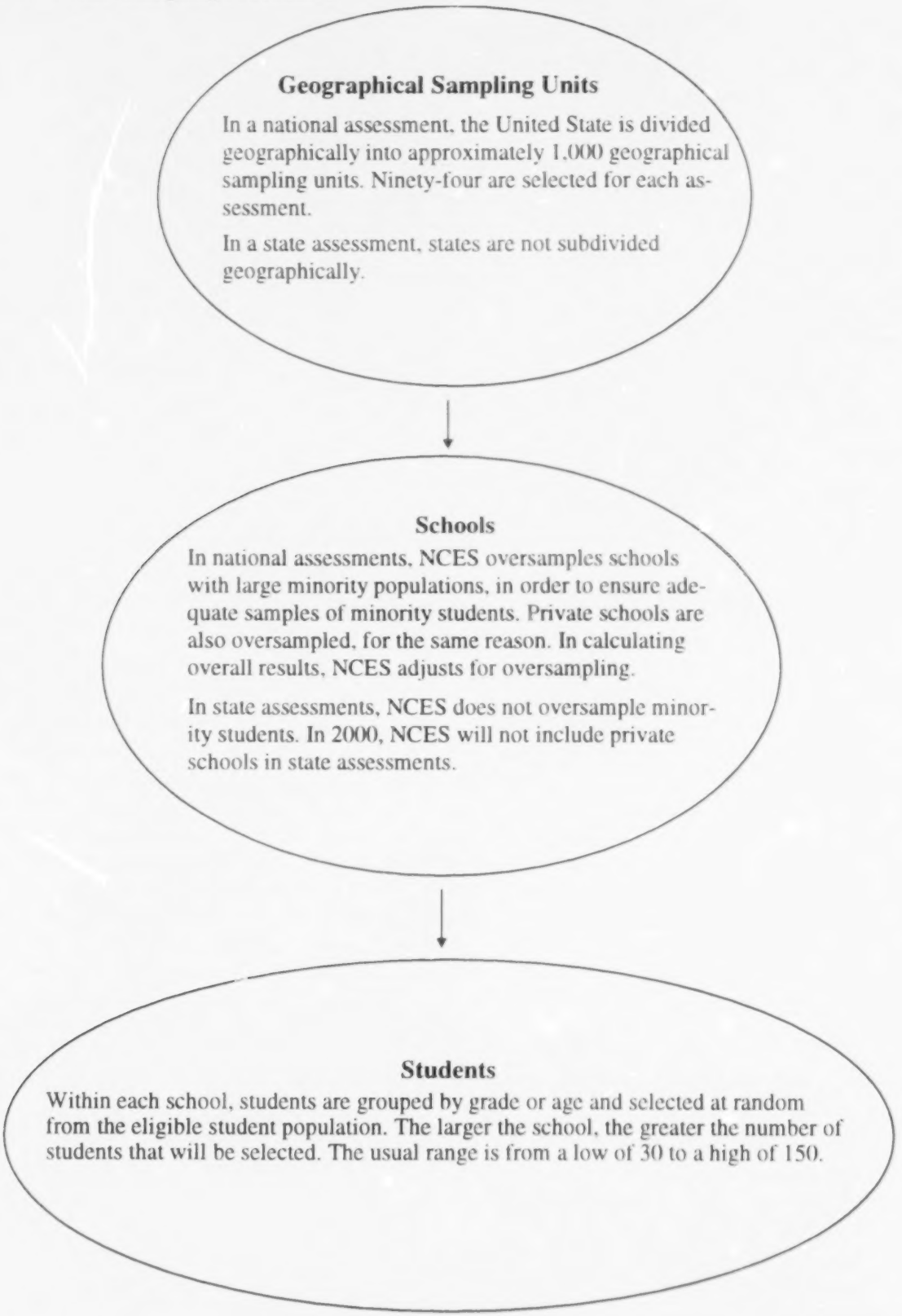
High participation rates help ensure the quality of NAEP. If schools or students selected to participate in NAEP decline to do so in large quantities, this affects the validity of NAEP data. Overall, over 80 percent of schools, and 85–95 percent of students, selected to participate in NAEP do participate. NCES cannot report data from a participating state if less than 70 percent of the initially selected schools agree to participate, and this has happened on occasion.

When a school declines to participate, the possibility exists that the school was somehow different from those schools that agreed to participate, and thus that the actual sample is not representative of the population as a whole. For example, low-performing schools might be more likely to decline than middle- and high-performing schools. Because there is no survey information available on a nonparticipating school, NCES cannot determine whether or not the school was in fact different. The greater the number of nonparticipating schools, the greater the possibility that the sample is not representative. Nonparticipation of individual students has a smaller but similar effect.

Can schools or students volunteer to participate in NAEP?

NCES cannot accept either schools or students as voluntary participants in NAEP. The sampling techniques that NCES uses in NAEP allow NCES to produce detailed results on student performance, while using only a small sample, and usually requiring no more than an hour and a half of a student's time for administration of the assessment. The validity of these results depends on the ability of NCES to know the probability of selection at every stage of the process, from geographical sam-

Figure 1.—NAEP Sampling Procedures


Geographical Sampling Units
In a national assessment, the United State is divided geographically into approximately 1,000 geographical sampling units. Ninety-four are selected for each assessment.
In a state assessment, states are not subdivided geographically.
Schools
In national assessments, NCES oversamples schools with large minority populations, in order to ensure adequate samples of minority students. Private schools are also oversampled, for the same reason. In calculating overall results, NCES adjusts for oversampling.
In state assessments, NCES does not oversample minority students. In 2000, NCES will not include private schools in state assessments.
Students
Within each school, students are grouped by grade or age and selected at random from the eligible student population. The larger the school, the greater the number of students that will be selected. The usual range is from a low of 30 to a high of 150.

pling unit to school to student. Certain types of schools or students may be more likely to volunteer for NAEP, and these differences could be related to performance. For example, higher performing schools or individuals might be more likely to volunteer. Inclusion of such schools or students could result in a sample that was not representative of the whole population. For this reason, NCES cannot accept schools or students not in the sample that volunteer to participate in NAEP.

Conclusion

For the past 30 years, NAEP has provided policymakers, educators, and the general public with valuable information on the academic performance of students in American schools. This is achieved at minimal burden for schools and students through the sampling and assessment techniques developed and employed by NCES.

Participating in NAEP does require a commitment of time and effort by schools and students. This willingness to participate makes it possible for NCES to provide the nation and the states with unique data on student performance. If all schools and students selected to participate in NAEP do participate, the accuracy and timeliness of the NAEP data are enhanced. High participation rates in NAEP allow Americans to make informed decisions about education and educational policy using the best possible data.

Endnotes

[1] In calculating the average performance of all students, NCES adjusts for the fact that certain groups were oversampled.

[2] In the past, NCES published results for private school students as a whole, and separately for Catholic and "other" private schools. In the national assessments conducted in 2000, with the oversampling of private schools, NCES will publish data on Catholic, Lutheran, Conservative Christian, "other religious," "other nonsectarian," and schools that are members of the National Association of Independent Schools.

[3] Most NAEP assessments assess students by grade, but some assess them by age (9, 13, or 17).

For More Information

The NAEP Guide, 1997–1998 Edition. Single copies are available free from ED Pubs, P.O. Box 1398, Jessup, MD 20794–1398. Copies may also be obtained over the World Wide Web (**http://nces.ed.gov/nationsreportcard/guide/97990.html**).

The *Focus on NAEP* series briefly summarizes information about the ongoing development and implementation of the National Assessment of Educational Progress (NAEP). This series is a product of the National Center for Education Statistics (NCES), Gary Phillips, Acting Commissioner, and Peggy Carr, Associate Commissioner for Education Assessment. This issue was written by Alan Vanneman, of the Education Statistics Services Institute, and Sheida White, of NCES. For more information, contact Sheida White at 202–502–7473.

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